

(No. 32, p. 365), which, presenting a membranous form when stretched across the irregularities of the detritus of the seabottom in which it may be growing, can be satisfactorily examined with the microscope, when it is found to be composed of an extremely thin transparent layer or epidermis on each side, enclosing one of polygonal cells of different sizes, indistinctly defined, but filled with granules, and apparently each containing a nucleus. In this membrane may be observed minute foreign bodies, such as fragments of sponge-spicules &c.; but their presence is only a part of what is taking place generally with the detritus under the spreading growth and agglomerating influence of this ruby-coloured organism, whose "granules" appear to bear the colouring-material. This is all that I could make out of *Halisarca rubitingens* in the dry state; and therefore, like Schmidt, I have stated that further observations in the wet state or while living are necessary for its elucidation.

XXVI.—On a Collection of Crustacea made by Baron Hermann-Maltzam at Goree Island, Senegambia. By EDWARD J. MIERS, F.L.S., F.Z.S.

[Continued from p. 220.]

Pilumnoplax sulcatifrons, var. *atlantica*, n.

Pilumnoplax sulcatifrons, Stimpson, Proc. Ac. Nat. Sci. Phil. p. 93 (1858).

I thus designate, with much hesitation, a small female crustacean which agrees in nearly all its characters with specimens from the "Eastern seas" in the Museum collection that are referred to Stimpson's species, of which, however, I have seen no typical specimens. The Oriental examples have lost their ambulatory legs, but agree in the form of the carapace and the antero-lateral marginal teeth, the notched and sulcated frontal margin, and the structure of the antennæ with the West-African specimen. This latter has somewhat slenderer chelipedes—a character that cannot be depended upon, in the absence of males from the same locality for comparison. Length $3\frac{1}{2}$ lines (nearly 8 millim.), breadth about $4\frac{1}{2}$ lines (10 millim.).

I may add, as further points of distinction, that there are a few granules near the base of the second antero-lateral tooth, and the sulcus reaching from the fourth tooth to the cardiac region is obsolete in the West-African specimen.

Typhlocarcinus integrifrons, sp. n.
(Pl. XIV. fig. 1.)

The carapace is transverse, granulated, convex longitudinally, with a short scanty pubescence on its upper surface, and clothed with longer hairs on the lateral margins and on the margins of the legs; the cervical and branchio-cardiac sutures are very distinct. Front somewhat deflexed, with its anterior margin entire, straight, and clothed with long hairs, and rounded off on the sides towards the inner orbital angles. Antero-lateral margins arcuated, when viewed under a high magnifying-power appearing granulated, with obscure indications of division into two or three granulated lobes. Epistome very short. Postabdomen (of male) not as wide in its widest part as the sternum, with all the segments distinct, terminal segment subtriangulate. The ocular peduncles lie closely within the orbits, which are widest internally, with granulated margins; a wide hiatus exists between the inner suborbital angle and the front, which is filled by the broad quadrate basal (or second) joint of the antennæ, which reaches to the front; the exposed joints of the antennal peduncle are slender and clothed with long hairs; the flagellum rather long and multiarticulate, the joints clothed with very short setæ; the outer maxillipedes are smooth externally, with scarcely any intervening hiatus when closed; ischium rather broad, merus about as broad as long, not notched at its antero-internal angle, where it is articulated with the next joint. Chelipedes (in the male) rather robust, pubescent; arm short, carpus without a tooth on its inner surface; palm short and broad, and rather convex, broader transversely than the carpus; fingers slightly arcuated, minutely toothed on their inner margins, which are hairy at base, and having a rather wide interspace between them when closed. Ambulatory legs compressed, with hairy margins and rather long and slender terminal joints. The male verges lie in channels of the sternum, but are visible from above. Colour light fulvous-brown. Length of the largest example (a male) somewhat over 3 lines (7 millim.), breadth 4 lines (nearly 9 millim.).

A second specimen (female) is of rather smaller size, with slender chelipedes, the fingers of which meet when closed.

It is with some hesitation that I assign this species to the genus *Typhlocarcinus* of Stimpson's family Rhizopidæ, as but few of the types to which it is apparently most nearly allied are represented in the Museum collection. The different genera of this family described by Stimpson are apparently separated by characters of small importance. The

species now described is apparently most nearly allied to *Ceratoplax* in the characters of the orbits, antennæ, and ambulatory legs, but differs in the form of the carapace, the small epistome, and the form of the merus of the maxillipedes. From *Typhlocarcinus nudus* and *T. villosus* it is distinguished by the form of the front, &c.

THAUMASTOPLAX, gen. nov.

I propose this generic name for a species in the collection that is closely allied in all its characters, and particularly in wanting the fifth pair of thoracic legs, to the genera *Hexapus*, De Haan, and *Amorphopus*, Bell, but is distinguished from the former by the much greater development of the second ambulatory legs and the structure of the outer maxillipedes, whose merus joint is elongated and narrowed at its summit, where it is articulated with the next joint; and from the latter by the well-formed orbits and the entire absence of rudimentary fifth legs.

Thaumastoplax anomalipes, g. et sp. n.
(Pl. XIV. fig. 2.)

The carapace is transverse, about one and a half times as broad as long, longitudinally rather convex, polished, naked, and rather coarsely punctulated above; the regions not defined; the sides sharp-edged; the antero-lateral margins arcuated, the margins of the branchial regions straight and parallel. The front is nearly a quarter the breadth of the carapace, and has its anterior margin nearly straight. The orbits are very small, without marginal fissures, with a wide hiatus at the infero-internal angle, which is filled by the basal part of the antennæ. The buccal cavity is without distinct longitudinal ridges on the palate; epistome obsolete; abdomen in the male narrow, five-jointed, the third and fourth joints coalescent, and also the fifth and sixth, although in one specimen traces of the suture dividing the two last-mentioned joints are discernible under the microscope; the sternal surface (in the specimens examined) is nearly naked. The eyes are closely encased in the orbits, which have a distinct inferior margin; the large antennules are transversely folded; antennæ with the basal portion very small and occupying the infero-internal orbital hiatus; antennal flagellum rather long and about ten-jointed. The outer maxillipedes are slender and clothed with long dense hairs on their inner margins; ischium and merus each longer than broad, narrowing at each end, and with the inner margin arcuated; the penultimate joint

dilated distally. Chelipedes (in the specimens examined) subequal, of moderate length; arm very short, little exceeding its vertical depth in length; carpus small; hands compressed, with short hairs and with subseriatly-arranged tubercles on their outer surface; fingers thin, sharp-edged, denticulated, and nearly meeting along their inner margins; second legs small, third and fourth legs thick, with the third to fifth joints very robust, and the claws small; fifth legs entirely wanting. Colour (in spirit) light yellowish brown; legs more or less densely clothed with a short pubescence. Length of the largest example (a male) nearly 4 lines (8 millim.), breadth a little over 6 lines (13 millim.).

Two smaller examples are in the collection—one a male, the other apparently an immature female.

This form is apparently so nearly allied to *Amorphopus* of Bell* that I am not sure whether it ought to be generically separated from it. In *Amorphopus*, however, the carapace is described as cylindrical, the inferior orbital margin is wholly wanting; the chelipedes are unequal, the fingers in the larger hand meeting only at the tips, and the fifth legs are represented by a minute tubercle inserted in a little notch at the base of the first joint of the fourth pair. Of this I find no trace in *T. anomalipes*.

The locality of Bell's type, *Amorphopus cylindraceus*, is not stated.

Hexapus seaxes (Fabr.), as described and illustrated by De Haan, in v. Siebold †, resembles this species in general shape and in having only three pairs of ambulatory legs, without a rudiment of a fourth; the species, however, is of minute size, the carapace somewhat broader behind, the outer maxillipedes with the ischium or second joint broad and transverse, merus quadrate (as shown in the figure), truncated at its distal end, with the next joint articulated with it at its antero-internal angle; the second legs are shorter, whereas in *T. anomalipes* they are longer and more robust than the rest.

Gelasimus tangieri (yg.).

Gelasimus tangieri, Eydoux, Magas. de Zoologie, vii. pl. xvii. (1835); M.-Edw. Ann. Sci. Nat. (ser. 3) Zool. xviii. p. 151, pl. iv. fig. 21 (1852); Heller, Crust. des südl. Europa's, p. 101 (1863); Kingsley, Proc. Acad. Nat. Sci. Philad. p. 153 (1880).

* Journ. Linn. Soc., Zool. iii. p. 27 (1859).

† Fauna Japonica, Crust. pp. 35, 63, pl. xi. fig. 5, and pl. D. fig. (1849).

Gelasimus perlatus, Herklots, Addit. Faun. Carcin. Afric. Occid. p. 6, pl. i. fig. 3 (1851); M.-Edwards, Ann. Sci. Nat. t. c. p. 151 (1852); Hilgendorf, Monatsber. der Akad. Wissensch. Berlin, p. 806 (1878); Kingsley, t. c. p. 153 (1880).

Here are referred three very small specimens in the collection, which I was at first disposed to regard as a distinct species; the largest only measures about 3 lines (7 millim.) in length and 4 lines ($8\frac{1}{2}$ millim.) in breadth. Not only do they differ from all the specimens of *G. tangieri* I have seen in their much smaller size, but also in the small number of the granules of the carapace, of which there are scarcely any on the median portions, and in the relatively much shorter fingers of the larger chelipede, which are no longer than the palm. The hand, when the fingers are closed, is nearly ovate; and there are scarcely any granules on its inner surface. An approach to these specimens is exhibited, however, in an example from Sierra Leone of rather small size; length of carapace $5\frac{1}{2}$ lines (12 millim.).

This species occurs at various localities on the northern and western coasts of Africa, as noted by Mr. Kingsley in his monographic list of the species of the genus above cited; and I may add, as a fact of much interest, that there are specimens from the West Indies (*Frazer*) in the British-Museum collection which are not to be distinguished specifically from the African examples.

Philyra cristata, sp. n. (Pl. XV. fig. 1.)

In this species the body is depressed, suborbiculate; carapace minutely punctulated above, produced at the margins into a thin continuous crest that surrounds the body; the regions are not distinguishable; the intestinal region, behind the posterior marginal crest, is also strongly cristate. The front has its anterior margin straight, and does not project anteriorly so much as the front of the buccal cavity. Orbits small; the fissures of the upper margin are very indistinct, and have a wide hiatus at their exterior and interior angles, and no lower margin other than that formed by the projecting rim of the buccal cavity. Postabdomen with all the joints except the first and last coalescent, of the male nearly half as broad as the sternum, concave on the sides in the middle, with a small tubercle on the penultimate joint, terminal joint much smaller than the preceding. Eyes small, black. Antennules lodged in horizontal fossettes. Antennæ scarcely distinguishable. Inferior surface of the body smooth and minutely punctulated. Outer maxillipedes with the triangular merus as long as the ischium; exognath very broad, with its

exterior margin arcuated, broader at its distal end than the endognath. Anterior legs or chelipedes rather slender; merus trigonous with the margins granulated; carpus very small; palm slightly compressed, with the upper and lower margins carinated but not granulated; fingers slightly incurved at their acute apices, and slightly hairy on their inner margins. Ambulatory legs slender and short, with the joints (except the dactylus) slightly compressed and carinated but not granulated; dactylus slender. Colour (in spirit) light yellowish or greyish, sometimes with faint dusky lines on the carapace. Length of the largest specimen nearly 3 lines (6 millim.), breadth very little more; length of chelipede, when extended, about 4 lines ($8\frac{1}{2}$ millim.).

I refer this species to the genus *Philyra*; but it may not improbably be found to constitute the type of a distinct genus intermediate between *Philyra* and *Onychomorpha*. It differs from all other species of the genus except *P. marginata*, A. M.-Edwards*, from Upolu, in the marginal crest or rim of the carapace, and in the form of the male postabdomen. From *Onychomorpha lamelligera*, Stimpson†, it differs not only in the form of the carapace, but also in the transverse antennular fossettes, form of the postabdomen in the male, and longer fingers of the chelipedes. *O. lamelligera* was obtained at Hong-Kong.

Philyra marginata is very briefly described, but is apparently distinguishable by the finely granulated upper and lower margins of the chelipedes.

Philyra levidorsalis, sp. n. (Pl. XV. fig. 2.)

Carapace moderately convex, smooth and shining, its upper surface minutely punctulated, slightly concave behind the front, but without any marked depressions or sutures, and destitute of granulations and tubercles; the lateral margins, however, are defined by a granulated line, which extends from the front to within a short distance of the posterior margin, which is straight and marked with a granulated ridge. The frontal margin projects less than the anterior margin of the buccal cavity, and has a very obscure median prominence. The inferior surface of the body is naked, shining, but minutely punctulated. The postabdomen of both sexes has all the joints except the first and last coalescent, without tubercles; the terminal joint in the male is very small, much narrower than the preceding, whose posterior limit is indicated by cre-

* Journ. Mus. Godeffroy, iv. p. 85 (1873).

† Proc. Ac. Nat. Sci. Phil. p. 162 (1858).

nations in the lateral margins. The eyes are contained in small circular orbits, whose upper margins are marked by a fissure. Antennules transverse; the minute antennæ are also placed almost transversely, and occupy the narrow inner orbital hiatus. Maxillipedes with large ischium and elongate triangulate merus joint; exognath stout, with its exterior margin curved, and apex (which does not reach quite to the distal end of the merus) rounded. Chelipedes robust, of moderate length; merus or arm with numerous small granules at its proximal end on its upper and under surfaces, the margins also granulated; carpus smooth, convex; palm little longer than broad, convex on its inner and outer surfaces, its upper margin acute, its inferior margin rounded; fingers but little shorter than the palm, curved at the apices and denticulated on the inner margins. Ambulatory legs slender, short; dactyli longer than the penultimate joint. Colour (in spirit) more or less slaty or pinkish. Length of the largest example (a male) little over 7 lines (15 millim.), breadth about $6\frac{1}{2}$ lines (nearly 14 millim.); length of chelipede (when extended) nearly 1 inch (25 millim.). In the smallest example (a female) the length of the carapace is about 4 lines (9 millim.).

Five males and females are retained from Baron Hermann-Maltzam's collection.

From the preceding species *P. levidorsalis* is distinguished by the absence of the lateral marginal crest, not to speak of other characters. It is distinguished from most of the other species of *Philyra* by its smooth and somewhat polished carapace and shorter robust chelipedes—from the Australian *P. orbicularis*, Bell, by the lateral marginal line of granules not being continued over the posterior margin, by the absence of a tubercle on the male postabdomen, smaller granules of the arms, and other characters.

Ilia spinosa, sp. n. (Pl. XV. fig. 3.)

This very interesting species has the subglobose body covered with small granules, which, however, are less numerous and crowded than in *I. nucleus*. There is a short spine on the pterygostomial region, and two long somewhat curved spines on the postero-lateral margins of the carapace, in place of the short postero-lateral spines of *I. nucleus*; also two shorter somewhat triangulate and compressed spines on the posterior margin, occupying the position of the rounded prominences of *I. nucleus*. In the form of the rostrum, postabdomen, and the thoracic limbs this species very nearly re-

sembles *I. nucleus*. Colour (in spirit) light purplish or yellowish; the smallest example has reddish markings. Length and breadth of the largest example (a female) about $8\frac{1}{2}$ lines (18 millim.); length of chelipede, when extended, 1 inch 7 lines (40 millim.).

Five specimens have been retained for the British Museum from Goree Bay. The largest male, which is but little smaller than the female above mentioned, has the carapace rather more strongly and closely granulated than the other specimens. In the adult females the postabdomen completely conceals the sternal surface; in a smaller example which appears to be of this sex, length and breadth nearly 5 lines (10 millim.), the postabdomen occupies little more than one third the breadth of the sternum.

The length of the posterior and postero-lateral spines of the carapace is so much greater than in *I. nucleus* that I cannot regard the distinction as of less than specific value when taken in connexion with the other characters I have mentioned. In the young examples, however, the spines are less developed. There is in the collection of the British Museum a young specimen from the Canaries (*R. MacAndrew, Esq.*) which I refer to this species.

EBALIA.

The specimens of this genus, and of the allied *Phlyxia* (which, I am inclined to think, cannot be retained as generically distinct), present such great individual variations of sex and age that their determination is extremely difficult, and is moreover complicated by the insufficiency of the figures and descriptions of several of the species. It is therefore not without much hesitation that I have described the following as new; and it is possible that a comparative examination of the types would have enabled me to identify one or more of them with previously described forms, or that a larger series would have shown that the distinctions are not in all cases of specific value.

Ebalia tuberculata, sp. n. (Pl. XIV. fig. 3.)

In this handsome species the carapace is subrhomboidal, rather convex, and covered with numerous small but prominent granulations, which are numerous and crowded on the prominent parts of the carapace, but absent upon some of the depressions—as, for instance, on the deep concavities behind the antero-lateral margins. The front is obtusely truncated or obscurely emarginated; a longitudinal narrow ridge passes

from it to the gastric region; the carapace is crossed in its widest part by a transverse series of six granulated elevations or tubercles, of which the two median are situated on the gastric region; posterior to these is another granulated prominence. The cardiac region is obtusely rounded and very convex; there are usually two slight prominences on the antero-lateral margins of the carapace, one on the postero-lateral margins, and two rounded lobes, which are sometimes confluent, on the posterior margin. The fissures of the upper orbital margin are indistinct or sometimes quite obliterated. The male postabdomen has its third to sixth joints coalescent. The antennulary fossæ communicate with the orbits by the cavity at the inner suborbital angle, which is also partly occupied by the basal antennal joints. The outer maxillipedes, legs, and the inferior surface of the carapace are granulated; the exognath of the maxillipedes is robust, with a nearly straight outer margin, and does not reach to the extremity of the triangulate merus joint of the endognath. The chelipedes (in the adult male) are closely granulated, the granules often acute; the arm or merus is slender and, like the carpus, destitute of prominent spines or tubercles; the palm has two slight prominences on its upper margin, and is rather convex on its inner surface; fingers compressed, acute at apex. Ambulatory legs short, slender, the joints (except the last) somewhat compressed, margins with acute granulations; terminal joints slender, pubescent. Colour (in spirit) yellowish or grey, often tinged with pink, sometimes with irregularly-disposed punctulations of a more intense purplish pink. Length of largest male a little over 5 lines (11 millim.), breadth about 6 lines (nearly 13 millim.); length of chelipede a little over 7 lines (15 millim.).

A good series of both sexes is in the Museum collection. The tuberculations of the carapace are more distinct in some specimens (from which the description is taken) than in others, where they are rather to be described as rounded prominences. In the females they are sometimes nearly obsolete. The margins of the postabdomen are usually marked with red spots. I very much doubt the generic distinctness of *Phlyxia* from *Ebalia*: the presence or absence of supraocular fissures is not a character of much importance; and the antennulary fossettes certainly communicate with the orbits in some species of *Ebalia* (e. g. in adult *E. tuberosa*).

There is a specimen from the Canaries, and another from Madeira, in the collection of the British Museum which have the carapace everywhere evenly and distinctly granulated, and scarcely any trace of the transverse series of prominences.

These may be designated *E. fragifera*; they may be no more than a marked variety of the preceding.

In *Ebalia maderensis*, Stimpson, from Funchal Bay*, no mention is made of the tubercles on the gastric region, and that on the cardiac region is described as "acutely prominent." Specimens are in the British-Museum collection from Madeira (*Rev. R. B. Watson*) which I refer to this species, which is perhaps identical with *E. tumefacta*.

Ebalia insignis, Lucas†, appears to be allied to *E. tuberculata*; but the tubercles of the carapace are differently disposed.

E. granulosa, M.-Edwards‡, has the posterior margin of the arm or merus joint cristate.

E. aspera, Costa§, somewhat resembles *E. fragifera* in the even granulation of the carapace, which, however, is very much more convex in *E. aspera* than in *E. fragifera*.

Ebalia affinis, sp. n. (Pl. XIV. fig. 4.)

The carapace is depressed, finely and closely granulated on the posterior half, but nearly smooth in its anterior half, with three small tubercles disposed in a triangle on the gastric region, a rounded prominence on the cardiac region, one on the hepatic and pterygostomian regions, a small tubercle, which is sometimes obsolete, on each branchial region, and two prominent rounded lobes on the posterior margin. Front slightly concave. Fissures of the upper orbital margin nearly obsolete. Inferior surface of the carapace, maxillipedes, and the merus joints of the chelipedes strongly granulated. Male postabdomen narrow, with the third to sixth joints coalescent. The exognath of the maxillipedes is broad and reaches to the distal end of the merus joint. Anterior legs or chelipedes slender and elongated, with the arms everywhere closely granulated, but not cristate or tuberculate; wrist and palm more finely granulated; palm somewhat convex on its inner surface and slightly cristate above; fingers straight, acute at their apices, and somewhat hairy on the inner margins at base. Ambulatory legs slender, with the joints not dilated and compressed, very finely granulated; tarsi pubescent. Colour (in spirit) yellowish or slate, tinged with pink. Length and breadth of an adult male about $4\frac{1}{2}$ lines (10 millim.);

* Proc. Ac. Nat. Sci. Phil. p. 160 (1858).

† Crust. in Explor. Sci. Algérie, p. 24, pl. ii. fig. 8 (1849).

‡ Hist. Nat. Crust. ii. p. 130 (1837).

§ Crost. in Fauna del Regno Napoli (Addizioni), p. 6, pl. v. fig. 5 (1838).

length of chelipede, when extended, about 7 lines (nearly 15 millim.).

In the females the lobes of the posterior margin of the carapace are not distinct one from another, so that the posterior margin appears nearly straight.

This species is evidently very nearly allied to *E. Cranchii*, but is more coarsely granulated, the two anterior of the tubercles of the gastric region are much less distinct, the palm of the chelipedes in the male slenderer and more elongated. Moreover, in *E. Cranchii* the exognath of the maxillipedes does not nearly reach to the distal end of the merus joint.

Dorippe armata. (Pl. XV. fig. 4.)

Dorippe armata, White, List Cr. Brit. Mus. p. 54 (1847), descript. nullâ.

Several small examples are in the collection (males and females); length of the largest nearly 6 lines (12 millim.), breadth about $7\frac{1}{2}$ lines (16 millim.).

The description that follows, as also the figure, is taken from White's typical example, which is a male of much larger size, length of carapace about 10 lines (21 millim.), greatest breadth about 1 inch 1 line (28 millim.), and was obtained during the Congo expedition (*J. Cranch*). It is without precise indication of locality.

Carapace moderately convex, with the cervical and branchio-cardiacal sutures strongly defined. The branchial and cardiac regions are convex above and distinctly granulated. The front between the orbits is concave; the inner orbital angle is prominent, but scarcely spiniform; there is a spine at the outer orbital angle, and a very strong spine on the sides of the branchial regions at the widest part of the carapace. The inferior surface of the body is more or less hairy; postabdomen 7-jointed in both sexes; the third joint in the male with a transverse prominence; terminal joint small, received into an excavation in the anterior margin of the penultimate joint, its distal half triangulate. Chelipedes (in the male) unequal; the larger (which is the right in the specimen described) has the arm granulated on its outer surface, without spines or tubercles; wrist granulated in its outer and proximal portion, without spines; hand about as long as vertically deep; palm posteriorly rounded, smooth on its outer and inner surfaces; fingers nearly straight, with acute apices, and only very obscurely denticulated on their inner margins. Smaller chelipede slender, with the fingers relatively longer and more distinctly denticulated. Second and third legs more than twice

as long as the carapace; fourth to sixth joints not much dilated, nor armed with spines, but longitudinally granulated above; terminal joint not quite as long as the preceding, compressed, and somewhat twisted. Fourth and fifth legs slender, short, and subdorsally elevated as in other species of the genus. Colour pale yellowish or greyish. The body and legs are more or less pubescent.

From the Mediterranean *D. lanata*, to which this species seems to be most nearly allied, *D. armata* differs not only in the much stronger lateral branchial spines, but in the non-tuberculated carapace, the non-spinulose merus joints of the second and third legs, &c. In the small West-African examples the chelipedes are feeble, subequal, and the outer orbital and lateral branchial spines much smaller.

Ethusa mascarone (Roux).

Several specimens (among them males and females) are in the collection from Goree Bay, which cannot be regarded as specifically distinct from Mediterranean examples, although the larger chelipede in the male has the palm deeper and externally somewhat more convex than the male from the Mediterranean in the Museum collection. Colour (in spirits) pale yellowish or purplish; chelipedes (of male) pale, with purplish tips. Besides the Mediterranean examples there are specimens in the British Museum from the Canaries.

Prof. A. Milne-Edwards has recently described a species, *Ethusa americana*, from West Florida*, which is only distinguished from *E. mascarone* by the more acute and divergent rostral spines, more deeply notched orbital margin, and more prominent postorbital spine. In these particulars I can see no difference between the Mediterranean and African specimens of *E. mascarone*.

The *Ethusa microphthalma* is another American species of this genus, quite recently described by Prof. S. I. Smith, from the coast of New England†. It is apparently well distinguished by the diagnostic characters mentioned by its author, *i. e.* the very small eyes and form of the carapace.

ANOMURA.

Dromia fulvo-hispida, sp. n. (Pl. XVI. fig. 1.)

In this species the carapace is a little broader than long, moderately convex, and covered with a short close fulvous

* Bull. Mus. Comp. Zool. viii. p. 30 (1880).

† Proc. U.S. Nat. Mus. iii. p. 418 (1881).

pubescence, which is absent (perhaps from abrasion) on the median and most elevated portion of the body. The antero-lateral margins are entire and apparently somewhat flattened on the hepatic regions. The front is triangulate and deflexed, with a small tuberculiform tooth above the inner orbital hiatus. Epistome triangulate. The buccal cavity has apparently no longitudinal palatal ridges, and has three fissures in its anterior margin. The male postabdomen is narrow-triangulate, with all the joints apparently distinct, and is covered, as is all the inferior surface of the body, with a dense fulvous hairy coat. Eyes well nigh concealed in the deep orbital cavities, which are very incomplete below. Basal joint of the antennules much enlarged. Basal antennal joint occupying the large hiatus beneath the ocular peduncles. Outer maxillipedes with the merus joint as long as the ischium, and truncated at its distal end, articulated at its antero-internal angle with the next joint; exognath narrow. Anterior legs or chelipedes of moderate length, densely hairy, but apparently without spines or tubercles; fingers naked, excavated, and strongly dentated at their apices. Ambulatory legs of the first two pairs somewhat flattened above, clothed with longish fulvous hairs; terminal joints slender. In the fourth and fifth pairs of legs the spiniform terminal joint is reflexible against a spiniform process of the penultimate joint. Colour of the single specimen (a male in spirit) light yellowish or fulvous brown; tips of fingers white. Length nearly 4 lines (8 millim.), breadth 5 lines (nearly 11 millim.). The specimen has been somewhat crushed and its natural outline thereby altered.

Dromia spinirostris, sp. n. (Pl. XVI. fig. 2.)

In this species the carapace is rather convex, a little broader than long, and clothed with a short close pubescence, which is absent in certain places; the surface is rather uneven, there being an obscure rounded prominence on each branchial region near the branchio-cardiacal suture, which, however, is very faintly defined; nor are the other sutures of the carapace indicated. The rostrum is composed of two rather prominent conical and slightly divergent spines; there is a short spine at the inner angle of the orbit, and another on its lower margin; four small dentiform spines on the lateral margins of the carapace, one on the subhepatic region, and one at the antero-lateral angles of the buccal cavity. The inferior surface of the body is clothed with a dense pubescence; the buccal cavity has no longitudinal ridges on the palate; the

sternal *sulci* in the female are not approximated, and terminate in a tubercle between the bases of the second pair of legs. The postabdomen in both sexes is seven-jointed; the terminal segment in the male is small, rounded at its distal end, and armed with a short rounded lobe or spine at its proximal and lateral angles. As is usual in the group, no *septa* separate the antennules from the antennæ and the antennæ from the eyes. The first antennal joint is short, the second robust. The outer maxillipedes have the merus as large as the ischium, with the next joint inserted at its antero-internal angle; exognath stout, and reaching nearly to the extremity of the merus. The chelipedes (in the two specimens examined) are subequal, moderately robust, and densely pubescent, except at the finger-tips; arm trigonous, carpus with two small tubercles on its upper and outer surface near the articulation with the merus; palm nearly twice as long as broad, in the male clothed with longer hair on the inner and under surface; fingers somewhat obliquely deflexed, dentated, and closely meeting along their inner edges, excavated, naked, and white at the apices. Second and third legs robust, not tuberculated, fourth and fifth legs subdorsally elevated; penultimate joint in both terminating in a spiniform process, against which the terminal claw closes; fifth legs much more slender and feeble than the fourth. Colour (in spirit) brownish. Length of the largest (a male) to tip of spines of rostrum about 1 inch 5 lines (nearly 36 millim.), breadth 1 inch 6 lines (38 millim.). The smaller example is a female with ova.

The form of the spines of the rostrum, together with the small dentiform teeth of the antero-lateral margins, appear to distinguish this species from its congeners.

Diogenes varians.

- Pagurus varians*, Costa, Fauna di Napoli, Cr. p. 9, pl. ii. fig. 2 (1838).
 ?*Pagurus arenarius*, Lucas, Anim. Artic. in Expl. Sci. Algérie, Crust. p. 33, pl. iii. fig. 7 (1849).
 ?*Diogenes arenarius*, Stimpson, Proc. Ac. Nat. Sci. Phil. p. 233 (1858).
Diogenes varians, Czerniavsky, Materialia ad zoograph. ponticam comparatam, p. 127 (1868); Heller, Crust. südl. Europa, p. 170, pl. v. figs. 13, 14 (1863).

Here are referred with some doubt a series of specimens inhabiting sponge-incrusted shells of the genera *Oliva*, *Turritella*, and *Clavatula*. As M. Costa's description and figure leave several points undetermined, the following description is given of the specimens from Goree Island. I may add that *D. varians* may itself be identical with the *Pagurus pugilator* of

Roux*, a species very insufficiently characterized; but, to judge from the figure, the smaller chelipede differs from that of *D. arenarius*. Heller, however (*t. c.*), unites it with that species.

The carapace is smooth and naked, the cervical suture very distinct, the branchial regions but little dilated; the front between the eyes has a very slight rounded median prominence, but a strong lobe or tooth on the outer side of the eye-peduncles; the rostriform spine attached to the ophthalmic segment does not reach to the apices of the ophthalmic scales. The terminal postabdominal segment is somewhat transverse, and has its margins armed with numerous small spinules. The eye-peduncles are rather slender, and do not quite equal in length the width of the frontal margin; their basal scales are spinulose on their outer and distal margins, the distal spinules being the longest; the antennules have the terminal peduncular joint slender and longer than the preceding, the flagella very short; the second joint of the peduncle of the antennæ is armed with a spinulose tooth, which does not reach to the apex of the eye-peduncle; the terminal joint of the peduncle is slender and longer than the preceding; the joints of the rather short flagella are clothed on the underside with very long setæ. The chelipedes are very unequal, the right small and feeble, the left very considerably developed; in the right the arm, wrist, and hand are of about equal thickness, the wrist and hand armed with a series of small spinules on their upper margins, and more or less hairy; fingers acute at the apices, and distinctly toothed on the inner margins; in the left chelipede the arm is very short and thick, with a few spiniform granules at the distal end of its upper and lower margins; wrist granulated, with a large concavity extending somewhat obliquely across the upper surface, its margins towards the inner side with stronger, almost spinuliform granules; palm scarcely longer than broad, nearly flat, and very closely and evenly granulated on its outer surface, punctulated on the inner surface, its lower margin acute and strongly granulated; fingers rather shorter than the palm, acute at their apices, lower finger rather strongly toothed on the inner margin, upper robust, arcuate, with strong, almost spinuliform tubercles on its upper margin. Second and third legs moderately robust, somewhat hairy, with the dactyli faintly longitudinally channelled on their outer surface, curved, and longer than the penultimate joints; the fourth legs are thicker than the fifth, with very small dactyli that scarcely

* Crust. de la Méditerranée, pl. xiv. fig. 3 (1830).

project beyond the scabrous pad at the distal end of the penultimate joint. The fifth legs are more distinctly chelate, the dactylus closely applied to the projecting lobe at the distal end of the penultimate joint. The uropoda are nearly symmetrical, the left little larger than the right. Colour (in spirit) yellowish; eye-peduncles orange, the chelipedes pinkish; there are faint indications of longitudinal orange or brownish bands on the joints of the legs. Length of carapace about 4 lines (9 millim.); of the second leg on the left side about 9 lines (19 millim.); the larger chelipede is incapable of full extension, therefore its dimensions are not given.

In what I regard as the typical state of this species, because most nearly resembling Costa's figure, the palm of the left chelipede is more elongated, with the lower margin nearly straight, outer surface of lower finger concave at base; in another variety, which I will designate var. *ovata*, the palm is more ovate, lower margin convexly arcuated, the fingers somewhat shorter, the lower nearly flat on its outer surface. In both the concavity of the wrist is very distinct.

In a single specimen of small size the granules on the outer surface of the wrist and palm are smaller and less crowded, wrist without any concavity on its upper surface, hand more elongated and less flattened on its outer surface, dactylus as long as the palm and less strongly spinulose. This variety (or species) may be designated provisionally var. *gracilimana*.

M. Brito de Capello has recently described* two species (*Pagurus Bocagei* and *P. algarbiensis*) from the Portuguese coast which appear to belong to this genus, and must be designated *Diogenes Bocagei* and *D. algarbiensis*. They are distinguished by having the sides of the carapace armed with a spinose crest, and by the anterior legs being "covered with spines," &c.

Pagurus striatus (Latr.).

Several small specimens inhabiting shells of *Conus prometheus*, var. *siamensis*, Hwass., and *Mesalia brevisialis*, Lamk., are referred to this species; their coloration, however, differs somewhat from that of *P. striatus* as described by Milne-Edwards and Roux, and as exhibited in dried specimens from the Mediterranean in the British-Museum collection. The coloration of the legs in the specimen preserved in spirits from Goree is a deep purplish red, variegated with pale blue and lighter red markings, and with numerous small whitish spots

* Jornal de Sciencias etc. de Lisboa, 1874, p. 123.

on the under and inner sides of the joints; the eye-peduncles are bluish, banded with red. Length of cephalothorax in the largest example (a male) about $7\frac{1}{2}$ lines (16 millim.), of the larger (left) chelipede, when extended as far as its conformation will allow, rather more than 1 inch (26 millim.). There are in the British Museum specimens of this species from Madeira (purchased) in which the coloration has to a considerable extent disappeared; also others apparently referable to the Mediterranean *P. calidus*, Roux. Of this latter species there are also specimens from Lanzarote Island (*Rev. R. T. Lowe*)*.

* There is in the collection of the Museum a remarkable Hermit-crab from St. Helena, which does not appear to have been described; it may be appropriately designated

Pagurus imperator, sp. n.

The carapace is indurated in its cervical portion, and considerably dilated on the sides of the branchial regions, with the cervical, post-frontal, and other sutures strongly defined; the lateral margins are hairy; the frontal margin is nearly straight, without any median rostriform prominence, but with an obtuse lobe or tooth on either side of the eye-peduncles. Four transverse calcareous plates protect the dorsal surface of the postabdomen; the penultimate and terminal segments are calcified, the penultimate segment with a T-shaped impression, the terminal segment furcate, with the lobes unequally developed and rounded at their distal ends, and with three or four denticles on their inner margins. Eye-peduncles robust and shorter than the front, with two or three tufts of hairs on their upper surface near the corneæ, and with their basal scales narrowing distally, and hairy and denticulated on their outer margins. Antennules short. Antennæ shorter than the body, with the terminal joint of the peduncle much longer than the preceding; the basal acicle short, spiniform, and not reaching far beyond the end of the penultimate peduncular joint; flagellum red, the joints clothed with very short setæ. Outer maxillipedes robust, short. Chelipedes robust, unequal; in both the merus is trigonous, with its inferior margin and the outer and distal margins armed with short spines; wrist and palm externally convex, wrist shorter than the palm; both wrist, palm, and fingers are armed on the outer surface with numerous conical acute spiniform tubercles, the surface between the tubercles in the larger (left) hand being closely pubescent, and in the smaller (right) chelipede clothed only with longer scattered hairs; the fingers are robust, dentated on their inner margins, and with black, corneous, excavated tips. The second and third legs are very robust, the last three joints armed above with strong spiniform tubercles and clothed with scattered hairs; tarsi externally longitudinally sulcated, except in the second leg on the left side, which has the last two joints dilated and nearly of the same form as in *P. pavementatus*, Hilgendorf, *i. e.* with a strong longitudinal tuberculated ridge on their outer surface, above which the outer surface of each joint is deeply longitudinally concave; margins densely hairy, the concavity deepest in the terminal joint; the fourth pair of legs are imperfectly and the fifth perfectly chelate; the four postabdominal appendages (developed on the left side only, and articulated with the calcareous dorsal plates) are simple; the uropoda are asymmetrical, the left being larger

Pagurus granulimanus, sp. n.
(Pl. XVI. fig. 3.)

This designation is proposed for a species of *Pagurus* of which there are several specimens inhabiting shells of *Cassidulus morio*, Lamk., *Purpura hæmastoma*, Lam., and *Natica cruentata*, Lam., in the collection.

Carapace one and a half times as long as broad, with the cardiao-branchial as well as the cervical sutures distinctly defined, punctulated in front of the cervical suture, with a few granulations near the antero-lateral angles; hepatic and branchial regions clothed with tufts of yellowish hairs; no distinct median rostriform projection; terminal postabdominal segment somewhat quadrate, with the angles rounded. Eye-peduncles slender and nearly or quite equalling in length the width of the frontal margin; ophthalmic scales narrow, nearly approximated in the median line, and with the apices denticulated. Antennules reaching little beyond the eye-peduncles; terminal joint of the peduncle slender and longer than the preceding; flagella very short. Antennæ shorter than the body, with thin basal acicles, rather narrow, acute at apices, reaching about halfway to the end of the eye-peduncles, and very hairy; the joints of the peduncle are very short, the penultimate joint has a short spine on the under surface near its distal end; flagella nearly naked. The last three joints of the outer maxillipedes have their under margins near the

than the right. Length of the largest specimen about $5\frac{1}{4}$ inches (133 millim.), of the larger (left) chelipede about $3\frac{1}{2}$ inches (88 millim.).

The ground-colour of the specimen described (which was presented by H. E. Dresser, Esq., and at the time of its acquisition by the Trustees had been preserved for some time in spirit) is orange-yellow, the front of the carapace and eye-peduncles variegated with purple; the prevailing colour of the limbs is a deep blood-red. In a second smaller example from the same locality (*J. C. Melliss, Esq.*) the coloration is not so distinct. Both examples are males.

There are several species allied to *P. imperator* in the structure of the left leg of the third pair. In *P. setifer*, M.-Edwards, from Australia (of which there are specimens in the Museum collection), and in *P. sculptipes*, Stimpson, from Japan, the eye-peduncles are much longer and slenderer; in *P. pavimentatus*, Hilgendorf, the hand of the left chelipede is much shorter in proportion to its length; *P. hungarus*, Herbst, is very imperfectly known; but Hilgendorf, in his remarks upon the specimens in the Berlin Museum, does not mention any differences from *P. pavimentatus* in the form of the left chelipede. In *P. sinistripes*, Stimpson, from Panama, the outer surface of the left chelipede is described as granulate-squamose, and the last two joints of the left leg of the third pair are apparently but little excavated. A much larger series than the Museum at present possesses is needed to show whether these are truly distinct or may not be, some or all, varieties of one widely-distributed form.

distal ends fringed with long hairs; the penultimate and antepenultimate joints are somewhat dilated near the distal ends of their inferior margins; the terminal joints are slender.

The chelipedes are very unequal, the right being small and the left considerably enlarged; in the right the wrist is about as long as the palm, and both are externally granulated and hairy, the hairs being more dense on the hands; fingers a little longer than the palms, scarcely denticulated on their inner margins, and subexcavated towards the tips, which are corneous and black. The left chelipede has the arm very short, thick, trigonous, with a strong blunt tubercle on its under surface; wrist and hand naked, the wrist shorter than the palm, and externally closely granulated; palm shorter than its vertical depth, somewhat compressed, with the outer surface covered with large flattened granules. A longitudinal series of more prominent granules exists near the upper margin, and a longitudinal series of larger, transversely set, flattened tubercles parallel to the lower margin, which is sharp-edged and crenulated; fingers very short, granulated externally, acute at the apices; the mobile finger with the outer surface deeply concave. Second and third legs robust; the right legs of each pair have the joints nearly smooth; dactyli a little longer than the penultimate joints, with black corneous tips: the third leg on the left side has the upper and outer margins of the last two joints carinated, and the outer surface concave, the concavity being deepest on the last joint. In the fourth legs (which are shorter and more robust than the fifth) the small dactylus impinges against the produced scabrous portion of the preceding joint; the slender fifth legs are not chelate; the male postabdomen is armed with four filamentous appendages on the left side, besides the uropods, which are very unequally developed, the left being much the larger. Colour (in spirit) yellowish, inclining to orange on the front of the carapace, eye-peduncles, and legs; left chelipede of a slaty or purplish tinge. Length of the carapace of the largest specimen (a male) about 10 lines (21 millim.). The legs are not capable of complete extension.

The form and sculpture of the left chelipede apparently distinguishes this species from all its congeners.

Isocheles? gracilis, sp. n. (Pl. XVI. fig. 4.)

In this species the carapace is membranaceous, widest posteriorly (at the back of the branchial regions), with the sides nearly straight and convergent thence to the front, which is sinuated, but without any rostriform projection; so that the

ophthalmic segment is just visible between the bases of the eye-peduncles. The postabdomen is clothed with scattered hairs, and has the dorsal surface of the antepenultimate and penultimate segments protected by imperfectly calcified plates; the terminal segment is somewhat transverse, and with a shallow emargination at its distal end. Eye-peduncles slender and longer than the width of the front; their basal scales small, with acute apices. Antennules small. Antennæ about as long as the animal, with a very small basal acicle; penultimate joint of the peduncle shorter than the terminal joint; joints of the flagellum with very short setæ. Outer maxillipedes very hairy. Right chelipede very little larger than the left; both are rather thinly clothed with longish hairs; with the merus unarmed; carpus with four or five short spines on their inner and upper margins; hands rather narrow-ovate (the left narrower than the right), with short spinules along the upper margins; fingers in the right about as long as, and in the left a little longer than, the palm, with acute apices, and rather strongly dentated along their inner edges. Second and third legs slender and hairy, with the penultimate longer than the antepenultimate joint, and the dactyli long, curved, and slightly twisted. Fourth and fifth legs slender, feeble, and hairy; in the fourth leg the small curved dactylus closes against the produced infero-distal scabrous lobe of the preceding joint; the fifth legs terminate in a very small but perfect chela; the left uropoda are much larger than the right, and hairy. Colour (in spirit) yellowish white; legs pinkish. Length of cephalothorax 5 lines (nearly 11 millim.), of right chelipede, when extended as far as its conformation will allow, $9\frac{1}{2}$ lines (20 millim.).

The single specimen examined is a male.

In most of its characters (*e. g.* the form of the carapace, hairy postabdomen, elongated eye-peduncles, which are approximated at base, short antennal flagella, and subequal horizontal chelæ, whose fingers are acute at the tips) this species belongs to *Isocheles*; but the antennal flagella are clothed with very short setæ, and the dactyli of the ambulatory legs are very slightly contorted.

Spiropagurus elegans, sp. n. (Pl. XVI. fig. 5.)

This is a very interesting addition to a genus whose only representatives hitherto known are from the Japanese seas and the West Indies (Barbadoes).

In general appearance it very much resembles the well-known *Eupagurus Prideauxii*, having similarly-formed but

more nearly equal chelipedes, and long twisted and longitudinally canaliculated joints to the second and third ambulatory legs.

The cephalothorax and legs are slightly pubescent. The carapace is rather broad in proportion to its length, and is of a thin and almost membranaceous texture. There is no distinct median rostriform projection, the carapace between the eyes being rather broadly rounded, and leaving the ophthalmic segment at this part partially visible. The cervical suture is very distinct. The terminal postabdominal segment is divided by a narrow almost closed longitudinal median fissure; and the lobes are armed on their distal and outer margin with ten to eleven small spinules. The eye-peduncles are short and thick, the corneæ somewhat dilated; and the eyes do not reach beyond the apices of the acicles of the antennæ; the scales at base of the ophthalmic peduncles are broad, entire, subtruncated at the distal ends. The antennules are short, with two flagella; the last joint of the slender peduncle nearly as long as the eye-stalks, the upper flagellum fringed on its under surface with long hairs. Antennæ about as long as the animal, the last joint of the peduncle little longer than the preceding; the slender acicle scarcely reaching beyond the end of the penultimate joint; the outer maxillipedes reach (when thrown forward) considerably beyond the antennules; the joints are hairy on their under surface at their distal ends. The chelipedes are of about equal length; the right, however, is more robust than the left; merus short, with two small denticles near the distal end on its under surface; carpus about as long as the palm, with about half a dozen small spinules of unequal length near the distal end of its inner and upper margin; hand ovate, palm about as long as fingers, smooth on its outer surface, its upper margin without spinules, its lower subacute; fingers meeting along their inner edges when closed, acute at apices, and very indistinctly denticulated on their inner margins. The left chelipede is very similar to the right, but the joints are slenderer. Second and third legs robust, with the fourth to sixth joints thick, nearly smooth; fourth joint with transverse short impressed lines, fringed with short setæ on its outer surface; on the fifth joints these lines are longitudinal, and on the sixth oblique; dactyli slender, much longer than the penultimate joints, fringed above with long hairs, and deeply longitudinally channelled on their outer surfaces. The fourth legs are wanting in the single specimen examined; the fifth are slender, feeble, and are apparently not chelate, the last joint being densely hairy on its under surface and at its distal end; the spirally-coiled genital ap-

pendage of the left fifth leg is articulated with the posterior surface of the basal joint and is membranaceous, with the outer margin indurated and diminishing in thickness to the extremity, which is slightly hairy. The uropoda are unequally developed, the rami of the right being smaller than those of the left. Colour (in spirit) whitish. Length of the cephalothorax of the male a little over 6 lines (13 millim.), of right chelipede about 9 lines (19 millim.). The full extension of this limb, however, is not possible.

The single example (male) is in imperfect condition, not only the fourth pair of legs but also the second leg on the right side being deficient.

In *S. spiriger* (De Haan), from Japan, the ciliated striations of the limbs exist, it would appear, on the chelipedes as well as the following limbs. In *S. dispar*, Stimpson, from Barbadoes, the fingers of the right chelipede are short, not more than half the length of the palm, and are coarsely toothed within.

In *S. iris*, A. M.-Edwards*, also from the Barbadoes, there is a distinct rounded rostriform lobe, and the chelipedes are covered with small spines.

Eupagurus excavatus.

Cancer excavatus, Herbst, Nat. Krabben u. Krebse, ii. (Abth. 2) p. 31, pl. xxiii. fig. 8 (1796).

Pagurus angulatus, Risso, Crust. de Nice, p. 58, pl. i. fig. 8 (1816); Hist. Nat. Eur. Mérid. v. p. 39 (1826); Desmarest, Consid. sur les Crust. p. 178 (1825); Roux, Crust. de la Méditerranée, pl. xli. (1830); M.-Edw. Hist. Nat. Crust. ii. p. 217 (1837); Lucas, Cr. in Anim. Artic. de l'Algérie, p. 28 (1849); Heller, Cr. südl. Europa's, p. 166 (1863).

Pagurus meticulousus, Roux, Cr. de la Médit. pl. xlii. (1830), var.

Pagurus excavatus, White, List Cr. Brit. Mus. p. 59 (1847).

Eupagurus angulatus, Stimpson, Proc. Ac. Nat. Sci. Philad. p. 237 (1858).

Several small specimens, representing both sexes, are in the collection, which I refer here with little hesitation. They scarcely differ from the much larger specimens in the collection of the British Museum, except in the lesser granulation of the chelipedes, which yet are of the form so characteristic of *E. excavatus*. The spinules arming the upper margin of the penultimate and antepenultimate joints of the right leg of the second pair exist, but are with difficulty discernible among the hairs with which this limb is clothed. Colour (in spirit) light yellowish; limbs pinker. The length of the carapace of the largest specimen from Goree barely

* Bull. Mus. Comp. Zool. viii. p. 44 (1880).

exceeds 8 lines (17 millim.). One specimen inhabited a shell of a species of *Clavatula*.

I cannot regard the distinctions mentioned by Heller as characteristic of *E. meticulousus* as of specific importance.

The smallest specimen in the collection referred to this species—length of carapace not 3 lines (6 millim.)—has the outer surface of the palm in the larger chelipede much more evenly granulated and the median longitudinal ridge obsolete, and bears a great resemblance to *E. Forbesii*, Heller, of which there is an authentically named specimen from Falmouth (*W. P. Cocks, Esq.*) in the Museum collection, which may be nothing but the young state of this species. I hesitate, however, to unite the two without further comparison of a larger series of specimens. A much larger example from Sicily, in the Museum collection, designated *E. Forbesii*, has the outer surface of the larger chela armed with numerous spines, and without depressions or longitudinal ridges, and is probably referable to *E. Lucasi*, Heller (= *E. spinimanus*, Lucas).

Besides the Paguridæ enumerated above, there is in the collection a very small hermit-crab, apparently of the genus *Cibanarius*, inhabiting a shell of *Nassa miga*, Adanson, which it would be unadvisable to designate by a distinct specific name.

[To be continued.]

XXVII.—Dr. H. ADLER'S * *Researches on the Alternating Generation of the Gall-flies of the Oak.*

“ A SATISFACTORY explanation of the mode of reproduction of the Cynipidæ will only be obtained when their development is traced step by step, through all its stages, from the fertilized and unfertilized egg. Let us hope that amongst our entomologists an Œdipus will be found able to solve this enigma.”

It was thus that Prof. von Siebold expressed himself in the last chapter of his work upon parthenogenesis, published ten years ago. The Œdipus has appeared, and has furnished us with one of the most curious chapters in the history of insects.

It has been known for a long time that in many species

* Translated by W. Francis, jun., from the ‘Bibliothèque Universelle de Genève’ for June 15, 1881.